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## INDUSTRIAL CONDITIONS.

### THEIR RELATION TO THE PUBLIC HEALTH.<sup>1</sup>

By B. S. WARREN, Surgeon, United States Public-Health Service, and Sanitary Adviser, United States Commission on Industrial Relations.

In the study of methods for the prevention of disease investigators have found that many of their problems are industrial and economic and that success in disease prevention very largely depends upon the proper adjustment of the industrial relations of employer and employee upon a basis that will permit employer and employee to live according to hygienic standards.

#### **The Duty of Public Health Workers in the Adjustment of Industrial Relations.**

The public-health forces should cooperate with those at work on these economic problems. They can thereby add to the powerful influences already working for industrial betterment and can help not only to obtain sanitary shops, but also to secure the better adjustment of industrial relations which are so potent in lowering the resistance of the individual employee and of all those who are dependent on him for a livelihood. There is the further necessity for health departments to cooperate in the adjustment of these relations where it is found that the deleterious effects extend to communities and are in a large part indirectly responsible for slum districts, alley dwellers, and low standards of living. The necessity for such cooperation is so clearly obvious that little need be said to prove the contention.

The national campaign for the study and prevention of tuberculosis has developed the fact that practically all persons at one time or another have the germs of the disease introduced into their bodies, and that these germs remain there without causing any apparent damage until the resistance of the individual is lowered from some cause due to inheritance and environment. There is little doubt that industrial conditions are frequently responsible for the environment which is active in lowering individual resistance.

This deleterious environment resulting from existing industrial conditions begins to exert its blighting influence with the beginning of life itself. It puts its stamp on the child yet unborn. It continues its influence through infancy and childhood. This handicap is carried by the child of the industrial worker when he enlists all too soon in the ranks beside his parents to bear the burden of the maximum of the industrial load.

In view of the well-recognized fact that disease affects more readily people with lowered resistance, whose bodies present conditions more favorable to the development of disease than do the bodies of average

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<sup>1</sup> Read before the Health Officers' Conference of the State of Louisiana, Apr. 20, 1914.

persons, it becomes necessary to study every circumstance in the occupation of the sick and disabled industrial worker, because occupation largely determines the environment, which is such a potential cause for lowered resistance.

#### Existing Industrial Conditions.

Published reports of existing industrial conditions, so far as they relate to hygiene and sanitation, show too clearly that by far the larger portion of our industries are not operating in a manner to give the workers proper hygienic conditions.

To quote from the report of the New York State Factory Investigating Commission, which investigated 7 per cent of the 45,000 establishments in that State, where there were employed 18 per cent of the 1,000,000 wage earners of the 45,000 establishments:

In many of the industrial establishments in the State the conditions of work have been found to be excellent, the management giving proper regard to the health and comfort of the employees, and the organization being model in all respects. Everything in reason has been done for the workers, and a high standard of efficiency has been maintained.

Unfortunately such model establishments and such enlightened employers are in the minority, as by far the greater number of employers have not yet awakened to the importance of improving conditions of labor. Investigations in a great number of factories throughout the State have revealed much that is deplorable. In the production of commodities great economy must needs be practiced as a matter of course; but there is a tendency on the part of many employers to economize not only in matters of legitimate expense, but also in space, light, air, and certain other safeguards to the health and lives of the workers. Such false economy inevitably injures the employer and imperils the health and lives of his employees.

Conditions in New York State are probably no worse than in other parts of the United States. It is probable that what is true of New York State is true for the United States and that such is the average to be found in all the States, especially those which are industrial centers.

The sanitary survey of the State of Louisiana is apparently as complete as any State survey made up to the present time. The partial results published by the State board of health in the Quarterly Bulletin of March 1, 1914, indicate that over 50 per cent of all the establishments in the State are in "poor" or "bad" sanitary condition. Unfortunately extensive investigations, like those made in New York and Louisiana, are rare.

Physical conditions of the places of employment are not the only factors in producing disease for which industrial conditions are responsible, but they may be taken as an index of hygienic conditions. It usually follows if physical conditions are "poor" hygienic conditions are also "poor," though it does not always follow if the former are good that the latter are also good. Other and equally important

factors are to be found in the long hours of labor, which cause exhaustion; poor wages paid; and the irregularity of employment, which further reduces the income so that the worker and those dependent upon him are of necessity poorly housed, poorly fed, and poorly clothed. Low wages are facts, not theories. Statistics show that in the 20 leading industries of the United States the average income of the heads of households is less than \$500 and that the total average income of the households is \$721 per annum; that the average household consists of 5.6 persons and lives in a home at an average rent of \$9 per month.

Estimating the cost of food at 30 cents per diem per adult and children at half that rate, the rent and food cost per annum per household would be \$611 or a little less than the total income, leaving \$110 for clothing, heating, lighting, recreation, and incidental expenses. These statistics are taken from the report of the Immigration Commission, which made a study of 15,726 households. It is the total environment of industrial workers which must be considered in the search for the causes of disease. The analysis of this environment must include the place of employment, the home, the places of rest, recreation, amusement, and the like.

#### **Responsibility for Existing Conditions.**

The responsibility for their environment does not by any means rest altogether upon the workers. No one is able to choose every part of one's environment, and this is especially true of many workers who have little or no choice, but must accept what is offered in the way of employment, and must also accept the home and other environment for which they can pay with the wages earned. This will continue to be true, especially in the unskilled group, so long as the supply of laborers is greater than the demand and the competition for employment makes it possible for the employer to fix the terms of employment. There are many conditions for which the industry is responsible outside of the place of employment. This is especially true where the industry controls the community. The same is true of large cities where the combined industries control through the fact that a large part of the population is directly or indirectly dependent upon them.

#### **Hygienic Standards.**

Hygienic standards are those requirements which are necessary to be maintained that men may live free from those influences which operate to cause disease either directly or indirectly.

When men live together in groups, large or small, individual rights must often be sacrificed for the community interest and property rights must be subordinated to the rights of man where the necessity arises.

This principle has been well recognized in matters of health administration in most cases. For example, where an article of commerce is likely to affect the health of the consumers, even though a small group, control has been permitted to the health authorities, but where an article of commerce is produced under circumstances which affect the health of large groups of producers little control has as yet been exercised over the deleterious influences. These are the influences which must be considered by health authorities of industrial centers. In fixing hygienic standards for industrial communities effort should be made to fix the responsibility for maintaining hygienic requirements.

These requirements naturally fall into three groups: Those for which the industry is responsible, those which depend upon individual effort, and those which must be left to public regulation. These fields of responsibility often overlap, and active cooperation by all concerned is necessary for proper enforcements.

The industrial establishments of the United States are so many that proper supervision by the State is prohibited by the cost, and it is only by the division of the authority as indicated at the end of this article that success may be expected.

In the campaign for prevention of disease there are many requirements which are of importance to a greater or less degree, and none should be neglected by those responsible for their enforcement, but four are of such vital importance that they may be considered fundamental, for little headway can be made in disease prevention until these are in effect. They are:

1. Hours of labor which do not cause excessive fatigue or cause damage to any part of the body.
2. Regular employment at a wage sufficient to meet the cost of hygienic living and insure against sickness or other physical disability.
3. Sanitary environment in the place of employment.
4. Education as to methods of hygienic living and the importance of such living.

#### **Fatigue.**

Work performed by any of the body cells produces waste products and other changes in the cells. Up to a certain limit, work, with the resulting changes in the cells, is beneficial and improves the physical condition of the cells, but when the work is excessive, too prolonged, or too fast, waste products begin to accumulate, the cells become exhausted, the proper changes fail, and if the cells are not properly rested damage results. If the work is continued without proper rest early breaking down and failure of the individual to perform his task are the final results.

When fatigue begins, by increasing the effort the worker may continue his pace, but as fatigue increases, greater and greater effort is required to keep his pace, until the breaking point is reached.

When the hours of labor are so prolonged or the strain is so great that the night's rest is not sufficient to restore the body cells to normal, the worker begins his day's work partially fatigued and can not keep his pace without greater effort than that required of the same individual when properly rested. The exhaustion lowers mental and physical resistance, and need of stimulation causes many to drink, at times to excess, when under other conditions they would lead comparatively sober lives. This has been demonstrated in the Engis Zinc Works. The hours of labor were cut down from 12 to 8 hours per day, the men earned as much and did as much work in 8 hours as they did formerly in 12, there was a marked decrease in the calls upon the sick fund, the men no longer felt the need of stimulation, drunkenness on duty was no longer noted, and sobriety was markedly increased.

#### **Wages.**

Regular employment at wages sufficient to meet the cost of hygienic living is the *sine qua non* of all the requirements. It does not take an expert in disease prevention to tell us that an underfed, poorly clothed, poorly housed group of people are going to prove easy prey to the germs of influenza, pneumonia, tuberculosis, and similar diseases. Neither does it take a deep and prolonged study of wages, cost of living, and housing conditions of the working people of the United States for us to know that a large percentage of them are living on a scale greatly below a hygienic minimum. To illustrate, we find that in the annual report for 1913 of the joint board of sanitary control in the garment trade in New York City, which represents 85,000 men and women workers, the following statement:

The most of the harm to the health of the workers is due to long hours, overexertion on piecework, overfatigue at rush seasons, and worry during the absence of work.

Representatives of the Phipps Institute report similar conditions in Philadelphia.

Conditions are no better in St. Louis, where Schwab, after a study made among 7,000 garment workers, found that 25 to 30 per cent suffer from neurasthenia. According to his view, the nerve weakness is due largely to overfatigue, speeding up on piecework during the rush season, and the lack of work during the prolonged slack season and the worry incident thereto.

In the same city the Jewish Alliance Exchange found that a very large majority of demands made upon the society for relief were due to sickness, and whether the sickness was the cause of lack of employment or not, the two conditions were so intimately related that per-

manent cure was not thought possible without adjusting the employment at a living wage.

When a substantial part of any community is working on a level much below a hygienic minimum there will be an increasing demand upon the charity organization, especially on account of sickness.

In fact, the index of the general effects of industrial conditions upon a community may be obtained by ascertaining the amounts expended for relief work by charitable and other organizations. When the industries fail to meet the cost of hygienic living by their employees, the burden is shifted to the public.

#### **Sanitary Environment in Places of Employment.**

The sanitary conditions of the places of employment have a distinct and direct bearing in the causation of disease through poor general conditions, poor lighting, heating, and ventilation, overcrowding, excessive humidity, and special conditions of deleterious gases, fumes, dusts, poisons, and the like. These conditions are so obviously causing disease and are so prevalent in so many industries and causing so much direct injury to the workers that the general public have come to consider these as the full extent of the damages for which industrial conditions are responsible.

The occupational diseases are so directly due to the employment that in many cases they could with little modification of the law be made to come under the workmen compensation acts.

The reports of the lead industries made by Alice Hamilton show such bad sanitary conditions that measures are being enacted to regulate those industries.

Conditions are no better in the chemical and dusty trades in New York State, as shown by the report of the factory commission.

#### **Education.**

It is not necessary to quote from reports showing the harmful effects of long hours, low wages, and poor sanitary conditions; they are matters of such common knowledge as to cause little comment except when some unusually bad condition is found.

It is evident that no great progress can be made in disease prevention in the industries until employers and employees are educated on the subject, have a practical knowledge of what constitutes hygienic living, and are impressed with the importance of health in producing efficiency and a settled status in the conditions of employment.

Education as to the requirements of hygienic living has been the subject of much discussion, but as yet the business world and the workers have not come to fully realize the importance of the requirements and the results to be obtained. Up to the present time the activities along this line have been mainly confined to a cleaning-up

campaign or to what may be called welfare work and placing the physical environment at the place of employment in sanitary condition. There is great need for these improvements; they are the most obvious things to do and will improve labor conditions and demonstrate what may be expected by further improvement. Many lives will be saved in this way, especially in the chemical trades and the dusty trades, but the great mass of workers are to be reached through the improvements in hours and wages.

The great need is to demonstrate to the business world that there is an optimum of hours of labor, speed, and nutrition for the industrial worker, which if adhered to will bring his output up to the maximum of quality and quantity and that at the optimum the worker will have fewer stoppages on account of accident or disease and will last the longest time in a profitable producing state.

In other words, the worker will not have to go to the hospital for frequent disabilities when at the age of best production, and will not be sent to the "scrap heap" when there should be many more years of profitable service if worked in accordance with hygienic standards. If worked at the optimum time, speed, and nutrition, there will be no great loss to the business in the final cost results, because in most cases the increase in quality and quantity of output brought about by the reduced hours of labor will offset to a great degree the increased cost.

It is not well to promise a complete offset as to cost when changed to the optimum, but it is safe to say that the consumer or public will not suffer, because the cost is already borne in the extra charges now made for free hospitals, charity organizations, and the like.

Establishments have made the change from 12 to 8 hours a day or from 9 to 8 and the increased cost has been offset by the increase in the hourly output. The instance of the Engis Zinc Works mentioned above is a case in point, and it is a recorded fact that the cost of production was decreased 20 per cent when the hours were changed from 12 to 8 per day.

The clearest case of record is probably that of the Zeiss Optical Works, Germany.<sup>1</sup> There Abbe kept a careful record for the years 1899-1900 of every cost when the plant was operating on a 9-hour day. In 1900-1901 the day was reduced to 8 hours. The records showed that the men earned over 3 per cent more than during the previous year, the output of the work for the 8-hour day was increased 3 per cent, and the power plant was able to be shut down an hour earlier. The record was for 233 men at an average age of 31 years, and many different occupations on a piecework basis were represented in the shop.

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<sup>1</sup> *Fatigue and Efficiency*, by Goldmark.



### **Relation of the Public Health Worker to the Industrial Warfare.**

Employers must be shown that the healthy man is the most efficient and the cheapest employee, and that any reasonable expense to maintain him in health is a profitable investment.

Employees must be convinced of the results to be expected from the maintenance of hygienic standards and that much of the responsibility is theirs.

The responsibility has been so thoroughly fixed on the employees by the protocol agreement among the garment workers in New York City that sanitary strikes are authorized.

It is at this point that the public health worker can act as a mediator between capital and labor and aid greatly in the amicable adjustment of the strife which is now so prevalent in the industrial world. Hope for improvement lies first in demonstrating the facts to those most interested—employer and employee. This is the field of the public-health organizations of the country, Federal, State, and local.

It is a matter of regret that medical men have not worked to greater purpose in this field. In the seclusion of hospitals they have worked with commendable success in curing the sick and wounded who have been coming in ever increasing numbers from this field, but they have neglected too long to preach methods of disease prevention and have gained a reputation in the business world for being impracticable, and for this reason the task will be harder to convince business men of the practicability of their plans.

Physicians must bring from the hospitals records in such form and in such volume that the business men will be convinced.

For this purpose case studies must be made in the hospitals located in industrial centers and careful records made of all, so that the doctors' knowledge will not be a matter of unrecorded experience and impressions, but recorded facts which will have greater weight as evidence. For this purpose competent men must study the laborers in their daily life before they become subjects for the hospital. This study must include the total environment and if possible untangle the bundle of influences that in effect are producing disease more surely than the germs which are the direct agents.

At present the laborers are to a degree playing the card of "horrible insanitary conditions" in places of employment to win public opinion without a true realization of what hygienic standards mean. For this reason the necessity is the greater for physicians to take up this work in the industrial warfare and as impartial investigators present the facts and remedies to both sides.

To maintain this unbiased point of view, doctors, especially those connected with Federal, State, and local governments, should be kept independent of the commerce and the labor departments of the various governments, but must always stand ready to cooperate with both. The real responsibility, however, rests with the industrial workers themselves after they are informed on the subject. States may enact laws, and labor departments may make every effort to enforce them, but the sanitary control of the industries of the United States involves such an extensive field and such a multitude of shops that it is not practicable under existing conditions for the States to employ sufficient inspection force for efficient supervision. Because of this, the industries must undertake it themselves, and to this end employers and employees must organize and assume the responsibility.

Many industries have grown to such proportions that their internal government is as complex and extensive as city governments. At present, most industries are under control of the owner, and the employees have little or no voice in their control, but there is evidence of a beginning transition stage to democratic form of government. This stage of revolution may be peaceable, and there is reason to believe that the contending forces may be able to get together on certain basic principles, and to find in hygienic standards, among other things, a field for joint control on which to meet and work out further agreements. It should be easy to convince employers of the justice of accepted hygienic standards, and equally easy to show employees the great benefit which will accrue to all concerned by including in trade agreements recognition of these standards. There is one striking example of this method of joint control which has now been in successful operation for over three years.

Operating under the protocol agreement of the cloak, suit and skirt, and dress and waist industries of Greater New York, in which there are over 85,000 employees, the joint board of sanitary control has been successful in cleaning up a large proportion of the shops in the city. With these results accomplished as a beginning, the board feels that it can take the next step and it is now studying other matters affecting the health of the employees, and the movement for control of all hygienic standards may grow out of the agreement. At any rate, sufficient has been accomplished to demonstrate the practicability of the plan and to commend it for trial by other industries.

Before such a plan can be adopted, however, there must be some kind of organization of the employers and employees, and the stronger both organizations become the more responsible they become and the greater the probability for success of the plan.

### Sickness Insurance.

There is another remedy, one that would probably prove more effective in preventing sickness than any other that has been proposed, and that is insurance in case of sickness or disability. When some one is forced to pay a definite amount in actual cash for every case of sickness among the industrial workers, those who must pay are going to become very active in the search for the cause and prevention of sickness. The financial interest is more likely to be successful than the academic or legislative. That this may be expected is demonstrated by the present activity in accident prevention in those States where workmen's compensation laws are in operation.

Managers are organizing "safety first" movements, spending substantial sums to investigate the causes of accidents, compelling foremen to use every means to prevent accidents, and organizing their men into safety first associations.

In those countries where compulsory sick-insurance laws are in force, the benefits derived have already been sufficient to prove their worth and that greater benefits are to be expected.

It is not intended to discuss the details of the plans here, but it may be stated that the laws provide only for those employees who work for wages or small salaries; the funds are provided by payments by employers of one-third to one-half and by employees one-half to two-thirds of a sum fixed by the State; in certain cases where the wage is very small the State contributes a part of the share to be paid by the employee. The German law provides that in no case shall the amount to be paid by the employee be more than  $4\frac{1}{2}$  per cent of his basic wage.

The benefits provided are chiefly medical relief in case of sickness or injury, the payment of a part of the weekly wage for a period of 26 weeks, and a pension in case of disability beyond a period of 26 weeks. There are many other small benefits provided.<sup>1</sup>

In Great Britain and Germany the medical relief includes sanatorium treatment and measures to prevent disability. These contemplate all hygienic measures to prevent sickness. At first there was much opposition on the part of physicians, but these differences have been adjusted.

Mr. Lloyd-George is authority for the statement that 20,000 of the 22,500 general practitioners are registered under the English act; that during the past year the Government had paid to physicians for medical services \$22,500,000; and that the average income of the physicians had been increased \$750 to \$1,000. This increase meant more work, but it also meant that millions of people were receiving medical attention who previously had none at all, that a general

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<sup>1</sup> For further details see copies of laws in Department of Labor Bulletins Nos. 102.

health survey of the British nation was being made, and that the State, through the doctors, was going down to rescue many poor wretches from the conditions under which they lived.

These statements by Mr. Lloyd-George demonstrate clearly that a greater influence for disease prevention has been set in motion by insurance against sickness, which fixes a money value to be paid for every case and fixes a definite financial gain to the industries in preventing sickness.

The present condition of the industries in the United States presents an ever-increasing need for the services of medical men, not only in their individual capacity for relief of sick and injured, but in the broader capacity as protectors of public health.

In conclusion, I will quote from Dr. Christopher Addison, of the University of London:

The State, however, has no right to ask any class of men to do the impossible. It confronts the medical profession with 600,000 ill-nourished children in our elementary schools, with 300,000 who have adenoids, etc.; it deplores the waste of infant life; it points to an army of factory girls and women workers with anemia, chronic indigestion, etc.; and it is beginning to say to the medical profession, "We want these things altered. We want these people to be healthier. Will you help us to treat them?" It would be invaluable if the medical profession after fair, complete, and organized consideration, but in a full and fearless manner, were to say to the State:

"Yes! We will turn to the task with all good will and do the best we can, but we can not undertake to make these children healthy by drugs. They need good food, fresh air, a clean and well-ventilated home. So long as these things are absent, so long as many of these children, with too little sleep, pass half their hours in the stuffy, stagnant air of an overcrowded room, so long will they crowd into our clinics and out-patient departments."

I hope also that they will add: "We claim also that those whose duty it is to make reports on the conditions of labor and home life of the people should be free to tell the truth, and the whole truth without fear or favor. These anemic girls, these dyspeptic women, are not to be put right by medicines alone. The hours they work, the conditions they work under, are often also concerned, as well as their habits of life and diet. It is useless for us to tell people to take proper food who have not the means of obtaining it, who sometimes are ignorant of how to cook it when they get it, and who often enough are paying what should be an economic rent for a decent home but are obtaining only tenement quarters without any facilities for decent life. It is the duty of the State to use its schools and other agencies to the full and give to the people a knowledge of these matters, of an appreciation of the value and meaning of cleanliness and temperance, and of other things which are of so grave importance in their daily life." There is no limit to the usefulness of a proper and enlightened cooperation between the medical profession and the State, and its influence would be felt in every department of national life.

## Hygienic Requirements (Outlined According to Responsibility).

### A. EMPLOYERS' RESPONSIBILITY.

1. Mental and physical fitness of employees. Physical examination prior to employment, and periodically thereafter.

2. Wages.

(a) Adequate to maintain the employees as to (1) proper food, (2) clothing, (3) hours for rest and recreation, and thereby maintain an efficient and healthy mind and body.

(b) Increase or promotions according to length of service to provide for family and increase in family.

(c) Adequate to save for old age or pay for old-age pension.

3. Place of employment.

(a) General sanitary conditions, (1) proper heating, (2) proper humidity, (3) proper lighting, (4) no overcrowding, (5) proper ventilation, (6) proper cleaning, (7) clean water supply.

(b) Special dangers, (1) substitute harmless or least dangerous material for use of dangerous material whenever practicable, (2) safe handling of dangerous material by mechanical devices, etc.

(c) Removal of dust, gases, and fumes.

(d) Safeguarding against accidents.

(e) Equipment necessary for personal hygiene, (1) washing facilities, (2) toilets (3) rest rooms, (4) lockers, etc.

4. Mental and physical energy expended.

(a) Hours of labor, (1) length of work day, (2) overtime, (3) night work.

(b) Fatigue; (1) rest, recreation, and sleep necessary to eliminate waste and restore body cells prior to beginning day's work; (2) posture, speed of work or attention required, which causes unusual strain to be eliminated where practical, or adequate rest periods to be allowed; (3) monotony of occupation as cause of fatigue.

5. Age and sex of employees.

(a) No child labor under 14 years.

(b) No night work for women, young people, or children.

6. Compensation for sickness and accident incident to employment.

7. Regular employment in so far as practicable.

8. Medical supervision by company physician.

(a) Prompt medical and surgical aid.

(b) Sanitary inspections.

(c) Elimination in an equitable manner of the mentally and physically unfit.

9. Contributor to sick insurance fund.

10. Education of employees.

(a) Prevention of disease.

(b) Prevention of accidents.

(c) Special rules for dangerous processes.

### B. EMPLOYEES' RESPONSIBILITY.

1. Home environment.

(a) General sanitary condition as to (1) heating, (2) humidity, (3) lighting, (4) overcrowding, (5) ventilation, (6) cleanliness, (7) clean water supply.

(b) Special sanitary condition.

(c) Personal hygiene, obtain proper (1) food, (2) clothing, (3) bathing, (4) rest, (5) recreation and avoidance of dissipation.

2. Places of recreation.

(a) General sanitary conditions.

- (b) Special sanitary conditions.
- (c) Personal hygiene, no dissipation.
- 3. Regular employment.
  - (a) Seek employment.
  - (b) Prompt attendance.
- 4. Procuring medical and surgical relief in case of sickness or accidents.
- 5. Contribution to sick insurance fund.
- 6. Education.
  - (a) Prevention of sickness.
  - (b) Prevention of accidents.
  - (c) Special rules for dangerous processes.
  - (d) Study to increase efficiency and fitness for promotion or increase in pay.

#### C. STATE RESPONSIBILITY.

- 1. Housing—home, shops, places of amusements, etc.
  - (a) Sanitary building regulations.
  - (b) Special regulations governing sanitation.
  - (c) Sanitary inspections.
  - (d) Licensing of dangerous trades.
  - (e) Personal hygiene requirements.
- 2. Regulations of hours of labor
  - (a) Day and night, to prevent exhaustion.
  - (b) No night work for women, young persons, or children.
  - (c) No child labor under 14 years.
  - (d) Overtime to be eliminated where practicable.
- 3. Minimum wage scale.
- 4. Medical supervision.
  - (a) Free hospitals for indigents.
  - (b) Dispensaries for indigents.
  - (c) Regulations governing medical attendance in certain industries.
- 5. Pure-food regulations.
- 6. Pure water supply.
- 7. Special measures to prevent disease.
- 8. Regulation of social insurance or compulsory sick and old age insurance.
- 9. Education of those concerned.

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## TRACHOMA IN KENTUCKY.

### A REPORT OF A SANITARY INSPECTION OF THE SCHOOLS OF JEFFERSON COUNTY, KY., WITH SPECIAL REFERENCE TO THE PREVALENCE OF TRACHOMA.

By J. H. OAKLEY and DUNLOP MOORE, Surgeons, and LAWRENCE KOLB, Passed Assistant Surgeon.  
United States Public Health Service.

On request of the State and local authorities, and in accordance with orders of December 1, 1913, from the Surgeon General, a sanitary inspection of the schools of Jefferson County, Ky., was undertaken for the particular object of ascertaining the prevalence of trachoma among school children. The work of inspection was begun December 7, 1913, and terminated February 14, 1914, there having been 12 days, interruption during this time on account of the Christmas holidays.

Jefferson County, one of the most important trade centers in the State, borders on the Ohio River and has a large urban as well as rural